Crestron **C2N-IADS30x24**
Intercom Audio Distribution System
Operations Guide

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Intercom Audio Distribution System: C2N-IADS30x24

Introduction

Features and Functions

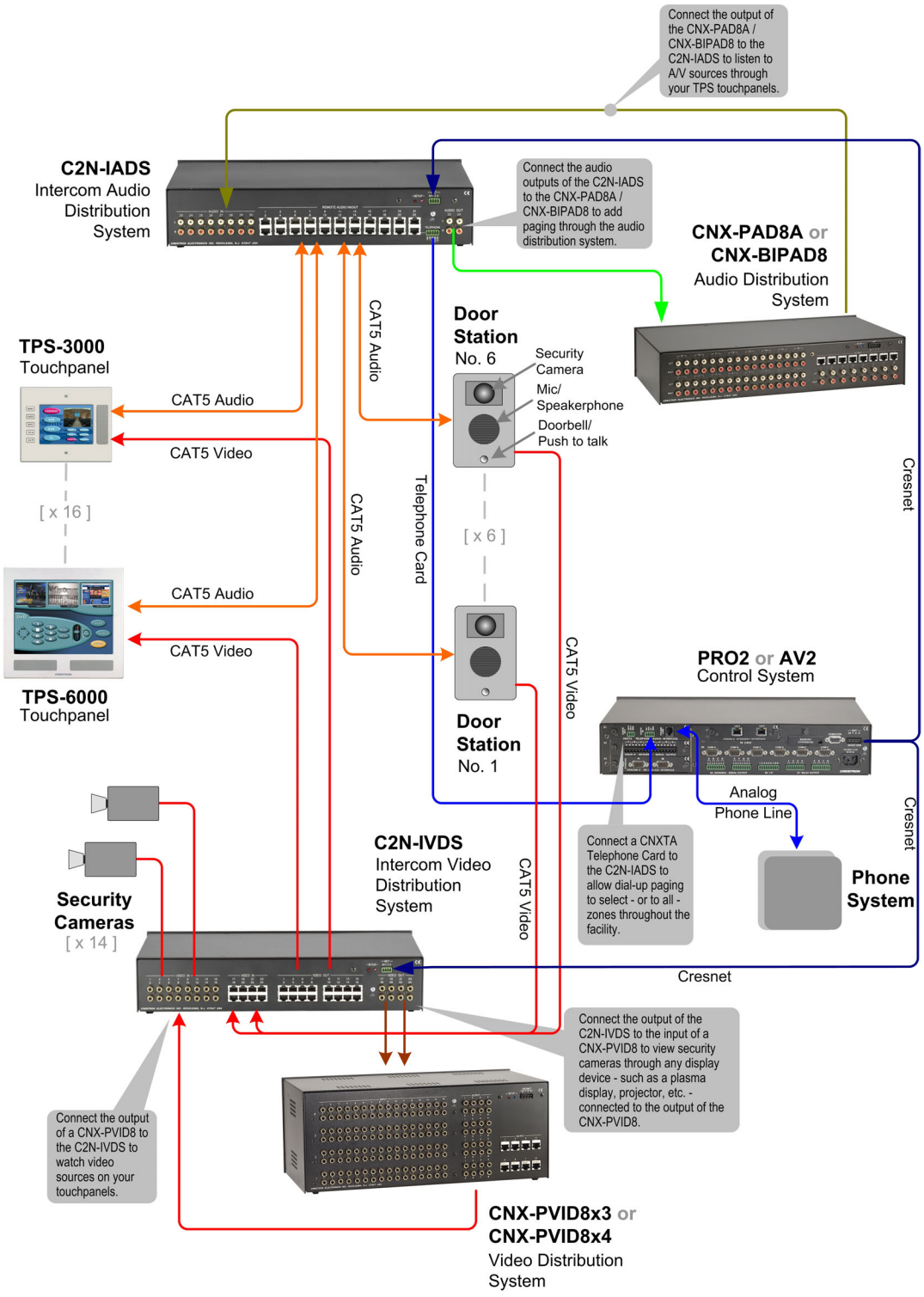
The Crestron® Intercom Audio Distribution System, C2N-IADS30X24 (hereinafter referred to as IADS), is a cost-effective addition to Crestron's audio distribution product line. The unit is compatible with 2-Series as well as X-Generation systems and provides whole facility paging, intercom to any room, door answering, and links to the facility phone, all through any Crestron TPS touchpanel.

Functional Summary

- 16 RCA inputs combine left and right channels to create eight mono inputs.
- 22 CAT5 line inputs/outputs for door stations and TPS touchpanels (remote audio in/out).
- 4 RCA outputs representing two mono channels by combining the left and right channels of each audio input.
- 1 five-pin miniconnector for CNXTA telephone card interface for dial-up paging and control.
- 1 four-pin miniconnector for Cresnet hookup.
- Built-in 30x24 audio crosspoint switch. Any mono input can be routed to any mono output. Any output can be turned off, providing a high-isolation off state.
- Touch-settable ID (TSID) ready.

Although the IADS can function alone as an intercom audio distribution controller, it is ideally suited to work in combination with the C2N-IVDS24X24 (IVDS) intercom video distribution system along with other Crestron audio/visual components and TPS touchpanels to provide a variety of A/V functions throughout the facility. (Refer to the simplified system diagram on the next page and the descriptions and functional diagram on page 3 for details.)

Simplified System Diagram


Connect the output of the CNX-PAD8A / CNX-BIPAD8 to the C2N-IADS to listen to A/V sources through your TPS touchpanels.
C2N-IADS
Intercom Audio Distribution System
Connect the audio outputs of the C2N-IADS to the CNX-PAD8A / CNX-BIPAD8 to add paging through the audio distribution system.
CNX-PAD8A or CNX-BIPAD8
Audio Distribution System
TPS-3000
Touchpanel
CAT5 Audio
CAT5 Video
[x 16]
CAT5 Audio
CAT5 Video
TPS-6000
Touchpanel
CAT5 Audio
Door Station
No. 6
Security Camera
Mic/ Speakerphone
Doorbell/ Push to talk
[x 6]
Telephone Card
CAT5 Audio
Cresnet
CAT5 Video
Door Station
No. 1
PRO2 or AV2
Control System
Analog Phone Line
Cresnet
Phone System
Connect a CNXTA Telephone Card to the C2N-IADS to allow dial-up paging to select - or to all - zones throughout the facility.
Security Cameras
[x 14]
C2N-IVDS
Intercom Video Distribution System
CAT5 Video
Cresnet
Connect the output of the C2N-IVDS to the input of a CNX-PVID8 to view security cameras through any display device - such as a plasma display, projector, etc. - connected to the output of the CNX-PVID8.
Connect the output of a CNX-PVID8 to the C2N-IVDS to watch video sources on your touchpanels.
CNX-PVID8x3 or CNX-PVID8x4
Video Distribution System

NOTE: The device types and quantities shown in the above diagram are for illustrative purposes only. Your actual configuration is limited only by the number of ports available, and could also contain multiple IADS and IVDS devices.

Paging

Connect the audio outputs of the IADS to a Crestron CNX-PAD8A (PAD8A) or CNX-BIPAD8 (BIPAD8) audio distribution system to add whole facility paging through the audio distribution system.

Connect a Crestron CNXTA telephone card (requires a control system that accepts expansion cards) to the IADS to allow dial-up paging to specific or to all zones throughout the facility.

A/V Source Monitoring

Connect the output of a PAD8A or BIPAD8 to the IADS to listen to A/V sources through your TPS touchpanels.

Security Camera Monitoring

Connect the IVDS output to the input of a CNX-PVID8X4 or CNX-PVID8X3 (PVID8) video distribution system to view security camera output through any display device, such as a plasma display or a projector, connected to the PVID8 output.

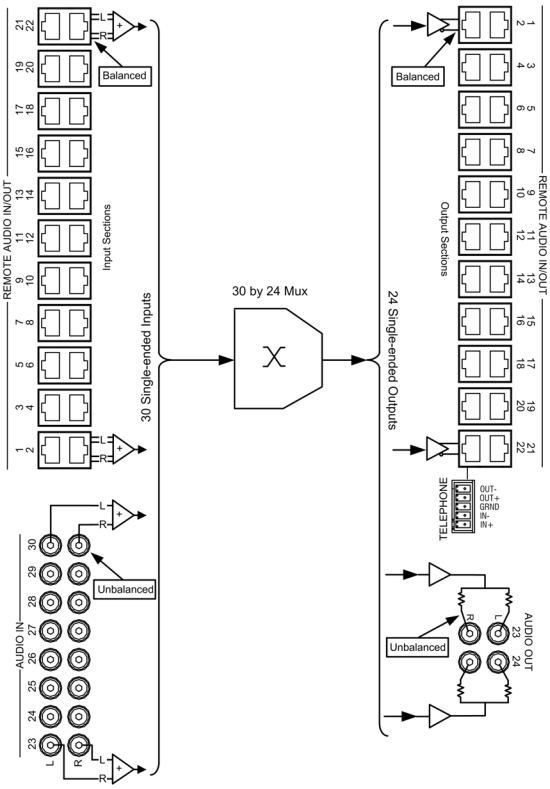
Video Monitoring

Connect the PVID8 output to the IVDS to watch video sources on your touchpanels.

Access Monitoring

Connect door station security camera, mic/speakerphone, and doorbell inputs and/or outputs to the IADS and IVDS to monitor and control access to the facility from any of your TPS touchpanels.

C2N-IADS30X24 Functional Diagram



Specifications

Specifications for the IADS are listed in the following table.

C2N-IADS30X24 Specifications

SPECIFICATION	DETAILS
Power Requirements	24 Watts (1.0 Amp max. @ 24 VDC)
Default Net ID	46
CAT5 I/O ports (REMOTE AUDIO IN/OUT 1 – 22)	RJ-45 Jacks – Twenty-two shielded jacks for balanced line audio to/from remote locations; one CAT5 stereo[1] input and output per connector.
Balanced line performance	
Audio input (RJ-45 connectors)	Differential line input impedance: 2k-Ohm Maximum differential input level: 4V rms
Audio output (RJ-45 connectors)	Differential line output impedance: 100 Ohm nominal Maximum differential output level: 4V rms nominal Gain: 0 dB
Isolation and bandwidth	Maximum crosstalk: ≤ -80 dB @ 1 KHz Minimum isolation: ≥ 80 dB @1 KHz Bandwidth: (-3 dB) 10 KHz nominal CMRR: >75 dB @ 20 Hz to 20 KHz
RCA input ports (AUDIO IN 23 - 30)	RCA jacks – Eight pairs for unbalanced left and right audio.
RCA output ports (AUDIO OUT 23 - 24))	RCA jacks – Two pairs for unbalanced left and right audio.
Unbalanced line performance	
Audio input (RCA connectors)	Input impedance: 10 k-Ohm nominal Maximum input level: 2V rms
Audio output (RCA connectors)	Line output impedance: 100 Ohm nominal Maximum output level: 2V rms Gain: 0dB
Isolation and bandwidth	Maximum crosstalk: ≤ -80 dB @ 1 KHz Minimum isolation: ≥ 80 dB @1 KHz Bandwidth: (-3 dB) 10 KHz nominal
C2N-IADS30X24 Firmware	C2N-IADS30X24.v1.10.upg
Control System Update Files [2, 3, 4]	
2-Series Control System MP2/MP2E CNMSX-AV/Pro CNRACKX/-DP	Version 3.061.CUZ or later Version MP2-V3062.CUZ or later Version 5.12.63X.UPZ or later Version 5.12.63W.UPZ or later
Rack space required	2U high, 1U wide
Environmental temperature	41° to 104°F (5° to 40°C)
Humidity	10% to 90% RH (non-condensing)
Dimensions	Height: 3.47 in (8.81 cm) Width: 17.10 in (43.43 cm) Depth: 8.68 in (22.05 cm)
Weight	3.4 lb (1.5 kg)

1. All stereo inputs are converted to mono inside the unit; all outputs are mono (left = right).
2. The latest versions can be obtained from the Downloads | Software Updates section of the Crestron website (www.crestron.com). Refer to NOTE below.
3. Crestron 2-Series control systems include the AV2, CP2, CP2E, MP2, MP2E, PAC2, PRO2, and RACK2.
4. CNX updater files are required for either CNMSX-AV/Pro or CNXRACKX/-DP. Filenames for CNX update files have a UPZ extension. To avoid program problems, make certain you are using the update file with the correct suffix letter (e.g.,W or X)

NOTE: Crestron software and any files on the website are for Authorized Crestron dealers and Crestron Authorized Independent Programmers (CAIP) only. New users

may be required to register to obtain access to certain areas of the site (including the FTP site).

Physical Description

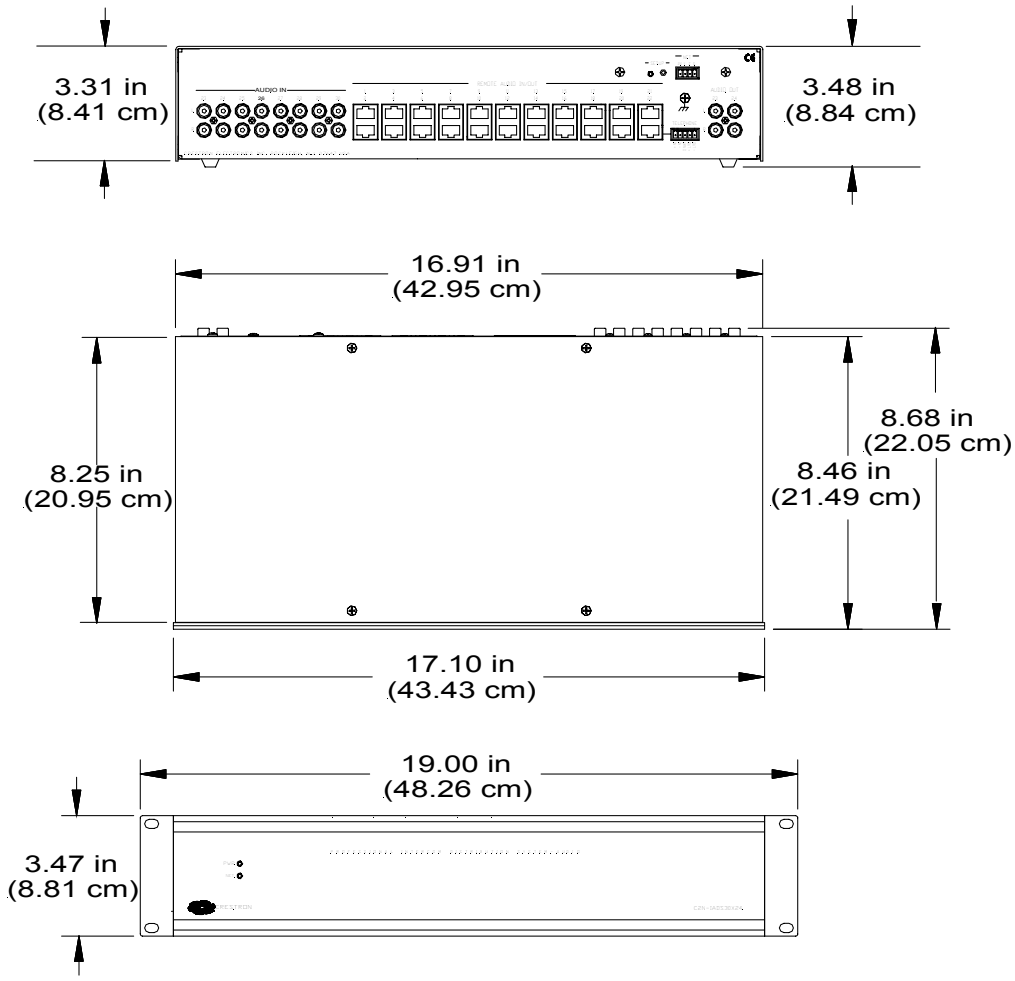
The IADS is housed in a black enclosure with labeling on the front and rear panels. Two LEDs on the front panel indicate the unit's current status. All connections are made to the back of the unit. Refer to the following illustrations of the front and rear panels and the physical views on the next page.

Two mounting ears are provided for rack mounting, and four square rubber feet are supplied for stability and to prevent slippage in tabletop placement or stacking configurations.

C2N-IADS30X24 Front Panel

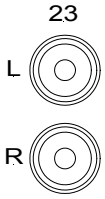
C2N-IADS30X24 Rear Panel

C2N-IADS30X24 Physical Views



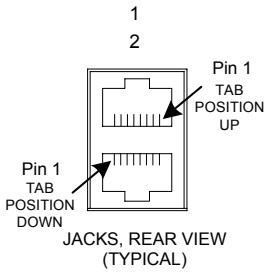
Ports

All connections to the IADS are made through the ports on the rear panel. Refer to the illustrations and descriptions, which follow.



AUDIO IN (23 - 30)

These eight pairs of RCA jacks combine the left and right channel stereo input to provide single mono inputs to the cross-point switch.



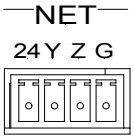
REMOTE AUDIO IN/OUT (1 – 22)

The twenty-two, shielded RJ-45 connectors provide for balanced line audio to/from remote locations in the facility; one CAT5 stereo input and output per connector. Signal connections for the jacks are given in the following table. All stereo inputs are converted to mono inside the unit; all outputs are mono (left = right).

Pin #	Signal
1	Audio In L +
2	Audio In L -
3	Audio In R +
4	Audio Out L -
5	Audio Out L +
6	Audio In R -
7	Audio Out R +
8	Audio Out R -

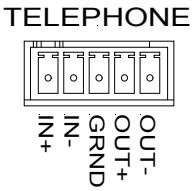
NOTE: When connecting the IADS to a BIPAD8 via CAT5, make sure that the IADS audio out pins are connected to the BIPAD8 audio in pins, and the IADS audio in pins are connected to the BIPAD8 audio out pins.

NOTE: For additional information on audio/video connections over CAT5, refer to the latest version of the Crestron CAT5 Wiring Reference Guide (Doc. 6137) which is available from the Downloads | Product Manuals section of the Crestron website (www.crestron.com).



NET

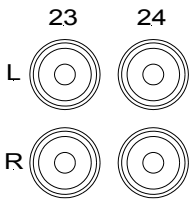
This 4-pin network connector is used to connect the IADS to the Cresnet system. Data and power for the IADS are provided via the connection. Refer to "Network Wiring" on page 8.



TELEPHONE

This five-pin connector is used to connect the IADS to a CNXTA telephone card mounted in a control system. The connections are in parallel with the REMOTE AUDIO IN/OUT port 22.

NOTE: If the TELEPHONE connector is used, the REMOTE AUDIO IN/OUT port 22 must *not* be used.



AUDIO OUT

The two pairs of RCA jacks provide unbalanced audio from the crosspoint switch, intended for connection to a PAD8A or BIPAD8 to be distributed to multiple locations in the facility.

(Chassis Ground)

Use this chassis screw to connect the audio source(s) common ground(s) to the IADS.

Indicators

Two LED indicators on the front panel indicate the unit's current status.

PWR (Power)

This LED illuminates when 24 volts DC is supplied to the IADS.

NET

This LED illuminates when communication between the control system and the IADS is established (the unit is polled on the network). Illumination indicates that the SIMPL Windows program currently loaded has a network device defined at the same Net ID as the IADS. The LED flashes when communication with the processor occurs.

SETUP LED and Pushbutton

The IADS is TSID ready. The SETUP pushbutton and its associated LED are located on the rear panel and are used for setup of the unit's network ID during the initial configuration of a Cresnet® system or when the device is being added/replaced. Refer to "Method B" on page 11 for detailed information.

Industry Compliance

As of the date of manufacture, the IADS has been tested and found to comply with specifications for CE marking and standards per EMC and Radiocommunications Compliance Labelling (N11785)

NOTE: This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) these devices may not cause harmful interference, and (2) these devices must accept any interference received, including interference that may cause undesired operation.

Setup

Network Wiring

NOTE: When installing network wiring, refer to the latest revision of the wiring diagram(s) appropriate for your specific system configuration, available from the

Downloads | Product Manuals | Wiring Diagrams section of the Crestron website (www.crestron.com).

When calculating the wire gauge for a particular network run, the length of the run and the power factor of each network unit to be connected must be taken into consideration. If network units are to be daisy-chained on the run, the power factor of each network unit to be daisy-chained must be added together to determine the power factor of the entire chain. The length of the run in feet and the power factor of the run should be used in the following resistance equation to calculate the value on the right side of the equation.

Resistance Equation

$$R < \frac{40{,}000}{L \times PF}$$

Where: R = Resistance (refer to table below).
L = Length of run (or chain) in feet.
PF = Power factor of entire run (or chain).

The required wire gauge should be chosen such that the resistance value is less than the value calculated in the resistance equation. Refer to the table after this paragraph.

Wire Gauge Values

RESISTANCE (R)	WIRE GAUGE
4	16
6	18
10	20
15	22
13	Doubled CAT5
8.7	Tripled CAT5

NOTE: All network wiring must consist of two twisted-pairs. One twisted pair is the +24V conductor and the GND conductor and the other twisted pair is the Y conductor and the Z conductor.

NOTE: When daisy chaining network units, always twist the ends of the incoming wire and outgoing wire that share a pin on the network connector. After twisting the ends, tin the twisted connection with solder. Apply solder only to the ends of the twisted wires. Avoid tinning too far up or the tinned end becomes brittle and breaks. After tinning the twisted ends, insert the tinned connection into the network connector and tighten the retaining screw. Repeat the procedure for the other three network conductors.

NOTE: For larger networks (i.e., greater than 28 network devices), it may be necessary to add a Cresnet Hub/Repeater (CNXHUB) to maintain signal quality throughout the network. Also, for networks with lengthy cable runs, it may be desirable to add a hub/repeater after only 20 network devices.

Identity Code

Every equipment and user interface within the network requires a unique identity code (Net ID). These codes are two-digit hexadecimal numbers from 03 to FE. The Net ID of each unit must match an ID code specified in the SIMPL Windows program. Refer to “Setting the Net ID in Device Settings” on page 16 for details of the SIMPL Windows procedure.

Refer to the note on page 18 for a definition of Viewport.

The NET ID of the IADS has been factory set to **46**. The NET IDs of multiple IADSs in the same system must be unique. NET IDs are changed from a personal computer (PC) via the Crestron Viewport.

NOTE: For detailed information on establishing communication between the PC and control system, refer to "Communication Settings" on page 18. If communication cannot be established, refer to the "Troubleshooting Communications" section in the respective Operations Guide for the control system.

There are two different methods—Method A or Method B—for setting the IADS NET IDs:

Method A (Cresnet address-settable ID), described below, applies to devices in a Cresnet system with a CNX control system or with a 2-Series control system and requires that a single unit be the only network device connected to the control system.

Method B (Touch Settable ID or TSID), which begins on page 11, applies to all TSID-ready devices in a Cresnet system with 2-Series control system upgrade file (CUZ) version 3.029 or later. TSID functionality makes it possible for the control system to recognize a network device via its serial number, which is stored in the device's memory. This method does not require that any devices be disconnected from the network; Net IDs may be set with the entire Cresnet system intact. This method requires the use of the Crestron Viewport version 3.35 or later.

Use the appropriate method to set the IADS Net ID.

Method A (Cresnet address-settable ID)

1. Ensure that the device requiring a Net ID change is the only unit connected to the control system.
2. Open the Crestron Viewport.
3. From the Viewport menu, select **Functions | Set Network ID**. The software checks the baud rate and then opens the "Set Network ID" window.
4. In the "Set Network ID" window, select the device requiring a Net ID change from the *Current Network Devices* text window.
5. Select the new Net ID for the device from the *Choose the new network ID for the selected device (Hex):* text box.
6. Click **Set ID** to initiate the change. This will display the "ID command has been sent" window.
7. In the "Command Complete" window, click **OK**.
8. In the *Current Network Devices* text window, verify the new Net ID code.
9. In the "Set Network ID" window, click **Close**.

NOTE: The new NET ID code may also be verified by selecting **Diagnostic | Report Network Devices** in the Viewport (alternately, select **F4**).

10. Repeat this procedure for each additional network device requiring a Net ID change.

Method B (Touch Settable IDs)

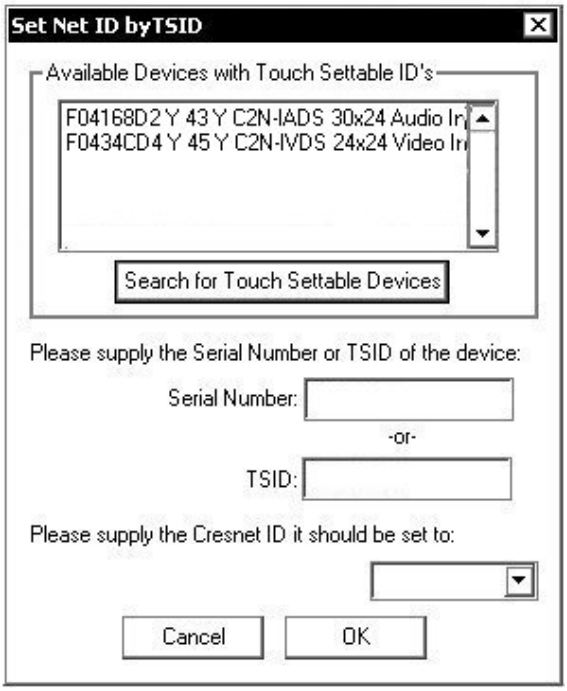
Before using this method, you should have a list of all current network devices and their Net IDs, to avoid assigning duplicate IDs.

Set Net ID by TSID

These procedures are for TSID-enabled network devices during the initial configuration of a Cresnet system or when such devices are being added/replaced.

1. Ensure that all network devices are connected to the control system.
2. Open the Crestron Viewport version 3.35 or later.
3. From the Viewport menu, select **Functions | Assign Cresnet ID by Serial Number**. The "Set Net ID by TSID" window appears. The window is first displayed with the data fields empty.
4. Click on the **Search for Touch Settable Devices** button. The system searches the network and lists all TSID-enabled devices found. The list is similar to the report produced by pressing **F4** (Report Network Devices); the first eight digits of each line constitute the TSID number (hexadecimal form of the serial number).

"Set Net ID by TSID" Window


Set Net ID byTSID
Available Devices with Touch Settable ID's
F04168D2 Y 43 Y C2N-IADS 30x24 Audio In
F0434CD4 Y 45 Y C2N-IVDS 24x24 Video In
Search for Touch Settable Devices
Please supply the Serial Number or TSID of the device:
Serial Number:
-or-
TSID:
Please supply the Cresnet ID it should be set to:
Cancel
OK

5. Enter either the serial number or TSID number of the device that requires a change. The list scrolls to and highlights the device listing. The listing should show the device's default Cresnet ID (a.k.a. Net ID).
6. Enter the Cresnet ID that the device should be set to and click **OK**. The number you enter should appear on the list.

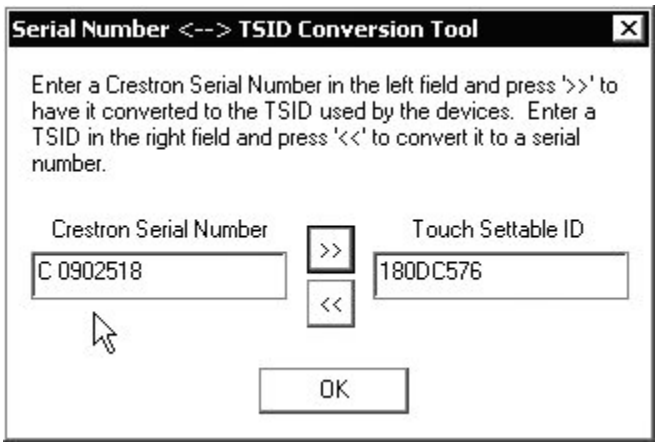
CAUTION: This function does not prevent you from setting duplicate IDs. Be sure to check current assignments before entering the desired Cresnet ID number.

Serial Number to TSID Conversion

This utility is useful in a case where there are multiple devices of the same type on a network, you need to locate a particular one, you know the TSID but not the serial number, and your site installation list is based on device serial numbers. In this (or the reverse) situation, do the following:

1. Open the Crestron Viewport.
2. From the Viewport menu, select **Functions | Serial Number ←→ TSID Conversion Tool**. The "Serial Number ←→TSID Conversion Tool" window is displayed.

"Serial Number to TSID Conversion Tool" Window



3. Enter the serial number or TSID number as instructed; press the appropriate button to obtain the corresponding number.

NOTE: Enter serial numbers, including spaces, exactly as they appear on the unit label. Alpha characters in serial numbers or TSID numbers may be entered in upper or lower case.

Rack Mounting

WARNING: To prevent bodily injury when mounting or servicing this unit in a rack, take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

NOTE: If rack mounting is not required, rubber feet are provided for tabletop mounting or stacking. Apply the feet near the corner edges on the underside of the unit. Refer to "Stacking" on page 13 for details.

NOTE: Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit. (e.g., use of power strips).

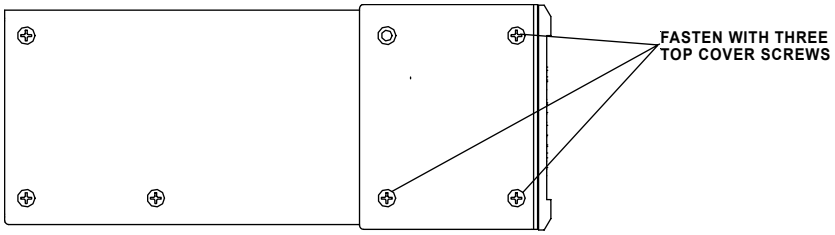
Two "ears" are provided with the IADS so the unit can be rack mounted. These ears must be installed prior to mounting. Complete the procedure below to attach ears to the IADS. The only tool required for this procedure is a #2 Phillips screwdriver.

1. There are several screws that secure the IADS top cover. Remove the three screws closest to the front panel from one side of the unit. (Refer to the illustration following step 3.)

2. Position a rack ear so that its drilled holes align with the holes vacated by the screws in step 1.

3. Secure the ear to the unit with the three screws from step 1, as shown below.

Ear Attachment for Rack Mounting (Side View of Unit)

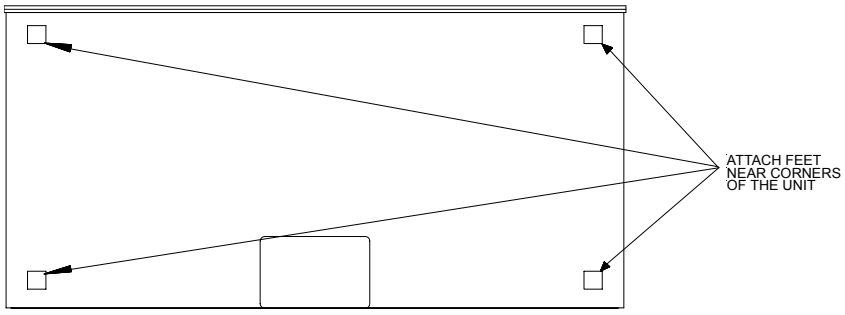


4. Repeat procedure (steps 1 through 3) to attach ear to the other side.

Stacking

Four "feet" are provided with the IADS so that if the unit is not rack mounted, the rubber feet can provide stability when the unit is placed on a flat surface or stacked. These feet should be attached prior to the hookup procedure. Refer to the illustration below for placement of the feet.

Feet Location (Bottom View of Unit)



Hardware Hookup

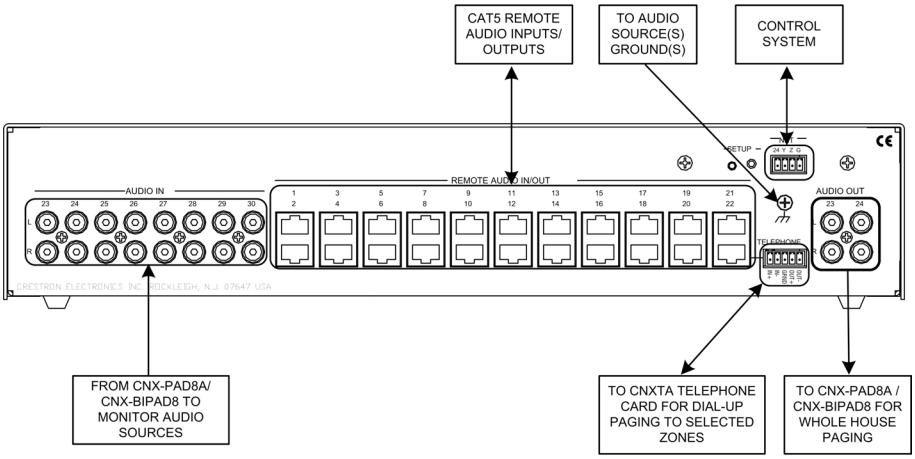
Refer to the hookup diagram on the next page. Other than making the power connection last, complete the connections in any order. Refer to “Network Wiring” on page 8 when making connections to the port labeled NET.

NOTE: To prevent overheating, do not operate this product in an area that exceeds the environmental temperature range listed in the table of specifications. Consideration must be given if installed in a closed or multi-unit rack assembly since the operating ambient temperature of the rack environment may be greater than the

room ambient. Contact with thermal insulating materials should be avoided on all sides of the unit.

NOTE: The maximum continuous current from equipment under any external load conditions shall not exceed a current limit that is suitable for the minimum wire gauge used in interconnecting cables. The ratings on the connecting unit's supply input should be considered to prevent overloading the wiring.

Hookup Connections for the C2N-IADS30X24


CAT5 REMOTE AUDIO INPUTS/ OUTPUTS
TO AUDIO SOURCE(S) GROUND(S)
CONTROL SYSTEM
SETUP
AUDIO IN
REMOTE AUDIO IN/OUT
AUDIO OUT
TELEPHONE
FROM CNX-PAD8A/ CNX-BIPAD8 TO MONITOR AUDIO SOURCES
TO CNXTA TELEPHONE CARD FOR DIAL-UP PAGING TO SELECTED ZONES
TO CNX-PAD8A / CNX-BIPAD8 FOR WHOLE HOUSE PAGING

Programming Software

Have a comment about Crestron software?

Direct software related suggestions and/or complaints to Crestron via email (software@crestron.com). Do not forward any queries to this address. Instead refer to "Further Inquiries" on page 24 for assistance.

Earliest Version Software Requirements for the PC

NOTE: Crestron recommends that you use the latest software to take advantage of the most recently released features. The latest software is available from the Downloads | Software Updates section of the Crestron website (www.crestron.com).

The following are the earliest useable software version requirements for the PC:

- SIMPL Windows version 2.04.14 or later. Requires SIMPL+ Cross Compiler version 1.1.
- Crestron Database version 16.0 or later. Required by SIMPL Windows.
- Crestron Viewport version 3.35 or later.

Programming with SIMPL Windows

NOTE: The following assumes that the reader has knowledge of SIMPL Windows. If not, refer to the extensive help information provided with the software.

NOTE: The following are acceptable file extensions for programs that include an IADS, developed for specific control system types:

.smw *projectname*.smw (source file)
.spz *projectname*.spz (compiled file for 2-series)
.bin *projectname*.bin (compiled file for CNX generation)
.csz *projectname*.csz (compiled file for CNX generation with SIMPL+)
.ush *projectname*.ush (compiled file for CNX generation user SIMPL+ module header file)

.usp *projectname*.usp (source code module for user SIMPL+)
.umc *projectname*.umc (user macro for SIMPL)

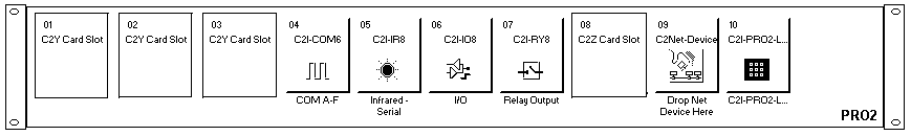
NOTE: In the following description, the PRO2 control system is used.

SIMPL Windows is Crestron's software for programming Crestron control systems. It provides a well-designed graphical environment with a number of workspaces (i.e., windows) in which a programmer can select, configure, program, test, and monitor a Crestron control system. SIMPL Windows offers drag and drop functionality in a familiar Windows® environment.

This section describes a sample SIMPL Windows program that includes a IADS.

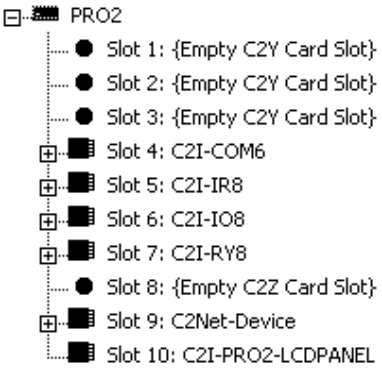
Configuration Manager is where programmers "build" a Crestron control system by selecting hardware from the *Device Library*. In Configuration Manager, drag the PRO2 from the Control Systems folder of the *Device Library* and drop it in the upper pane of the *System Views*. The PRO2 with its associated communication ports is displayed in the *System Views* upper pane.

PRO2 System View



The *System Views* lower pane displays the PRO2 system tree (refer to graphic below). This tree can be expanded to display and configure the communications ports.

Expanded PRO2 System Tree

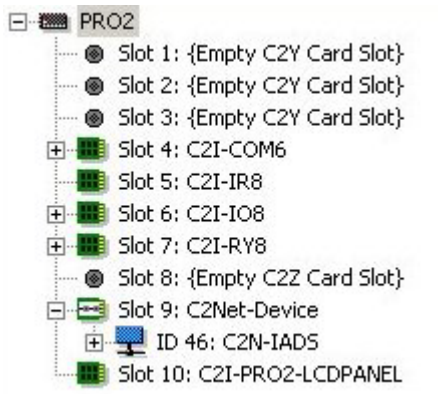


C2Net-Device Slot in Configuration Manager

To incorporate an IADS into the system, drag the C2N-IADS from the Cresnet Control Modules | Cresnet Audio Modules folder of the *Device Library* and drop it in *System Views*. The PRO2 system tree displays the IADS in Slot 9, with a default Net ID of 46 as shown in the illustration on the next page.

NOTE: The first IADS in a system is preset with a Net ID of 46 when its symbol is dragged into the upper pane of *System Views*. Additional units are assigned different Net ID numbers as they are added.

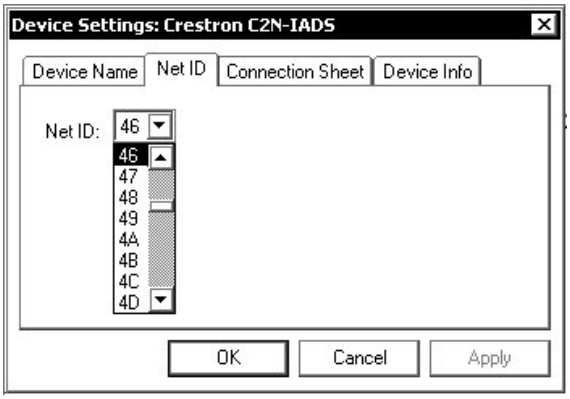
C2Net Device, Slot 9



Setting the Net ID in Device Settings

Double-click the IADS icon to open the "Device Settings" window. This window displays the IADS device information. If necessary, select the *Net ID* tab to change the Net ID, as shown in the following figure.

C2N-IADS30X24 "Device Settings" Window

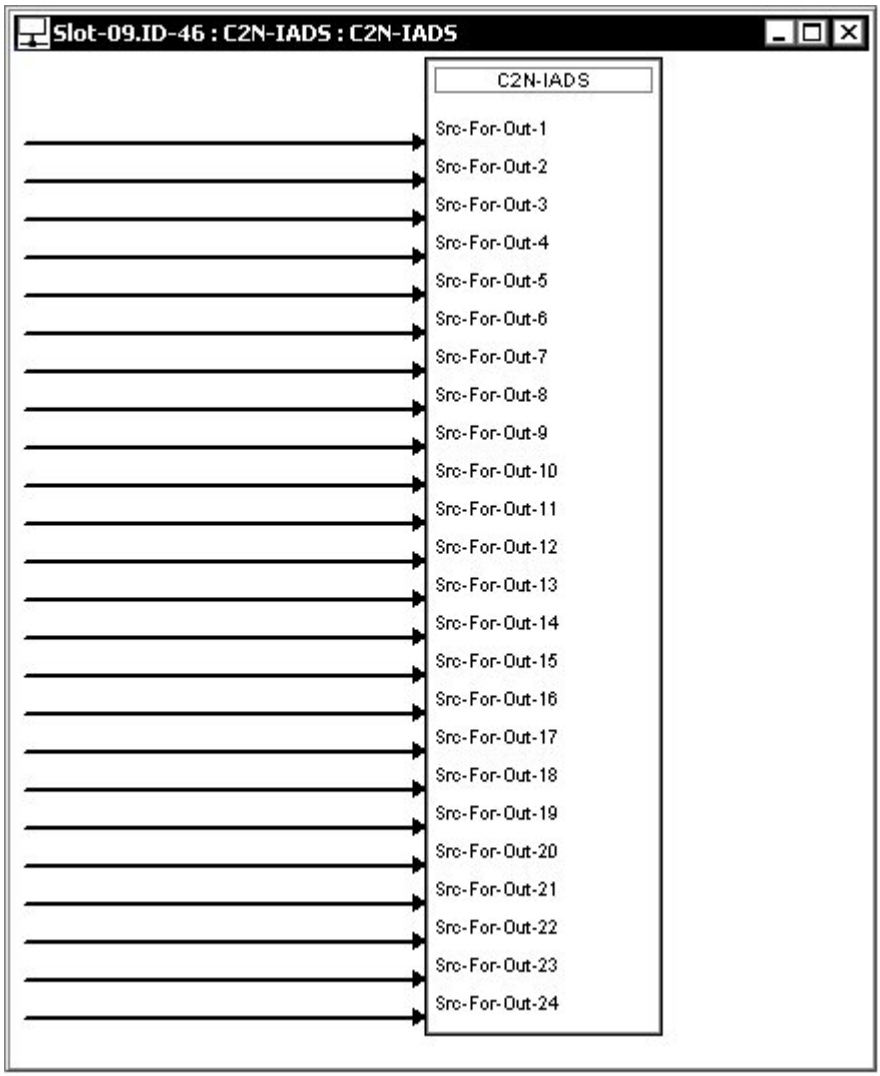


NOTE: SIMPL Windows automatically changes Net ID values of a device added to a program if a duplicate device or a device with the same default Net ID already exists in the program. Always ensure that the hardware and software settings of the Net ID match. For Net ID hardware setting details, refer to "Identity Code" on page 9.

C2N-IADS30X24 Symbol in Programming Manager

Programming Manager is where programmers "program" a Crestron control system by assigning signals to symbols. The graphic on the next page shows the IADS symbol in the SIMPL Windows' Programming Manager.

Detail View of the C2N-IADS30X24 in SIMPL Windows' Programming Manager



The IADS symbol is defined by the inputs assigned to its ports. The diagram above shows the symbol associated with the ports of the IADS in SIMPL Windows.

Twenty-four analog input signals, in digital format, control the output. Setting an input to 0d (no source routed) turns that output off; setting the input to a value of 1d through 30d routes the designated input source to that output.

Example Program

An example program for the IADS is available from the Crestron FTP site (ftp://ftp.crestron.com/Examples). Search for C2NIADS_C2NIVDS.ZIP. It contains the example program, associated files and a README.TXT file that describes the program.

Uploading and Upgrading

Assuming a PC is properly connected to the entire system, Crestron programming software allows the programmer to upload programs and projects after their development to the system and network devices. However, there are times when the files for the program and projects are compiled and not uploaded. Instead, compiled files may be distributed from programmers to installers, from Crestron to dealers, etc. Even firmware upgrades are available from the Crestron website as new features are developed after product releases. In those instances, one has the option to upload via the programming software or to upload and upgrade via the Crestron Viewport.

NOTE: The Crestron Viewport is available as a pull-down command from SIMPL Windows and VT Pro-e (**Tools | Viewport**) or as a standalone utility. The Viewport utility accomplishes multiple system tasks, primarily via an RS-232 or TCP/IP connection between the control system and a PC. It is used to observe system processes, upload new operating systems and firmware, change system and network parameters, and communicate with network device consoles and touchpanels, among many other tasks. Viewport can also function as a terminal emulator for generic file transfer. All of these functions are accessed through the commands and options in the Viewport menus. Therefore, for its effectiveness as a support and diagnostic tool, the Crestron Viewport may be preferred over development tools when uploading programs and projects.

The following sections define how one would upload a SIMPL Windows program or upgrade the firmware of the IADS. However, before attempting to upload or upgrade, it is necessary to establish communications.

Communication Settings

NOTE: For laptops and other PCs without a built-in RS-232 port, Crestron recommends the use of PCMCIA cards, rather than USB-to-serial adapters. If a USB-to-serial adapter must be used, Crestron has tested the following devices with good results:

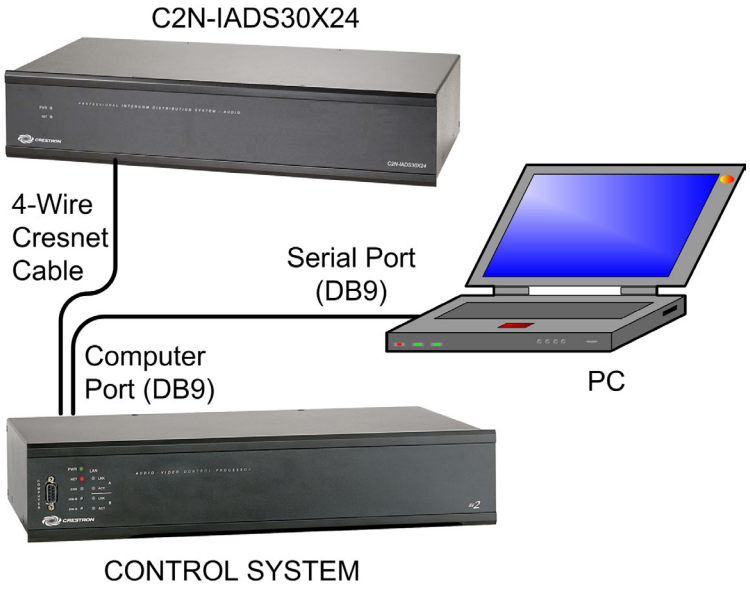
Belkin (large model) F5U103
I/O Gear GUC232A
Keyspan USA-19QW

Other models, even from the same manufacturer, may not yield the same results.

The procedure in this section provides details for RS-232 communication between the PC and the control system. If TCP/IP communication is preferred, consult the latest version of the Crestron e-Control Reference Guide (Doc. 6052) or the respective Operations Guide for the control system. These documents are available from the Downloads | Product Manuals section of the Crestron website (www.crestron.com). Refer to the figure on the next page for a typical connection diagram when uploading files

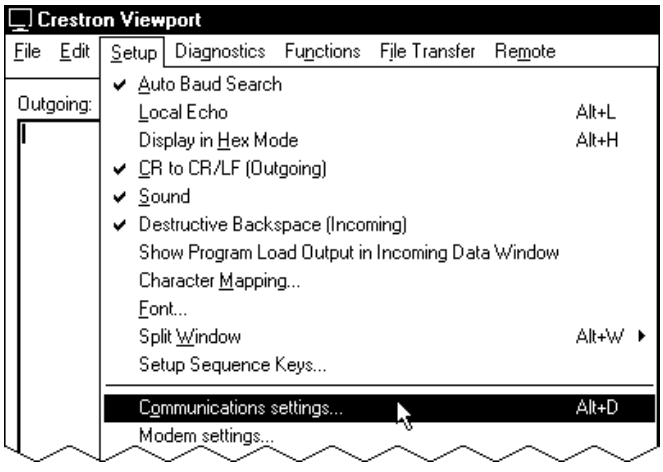
NOTE: Use a standard DB9 male to female “straight-through” cable.

Typical Connection Diagram when Uploading



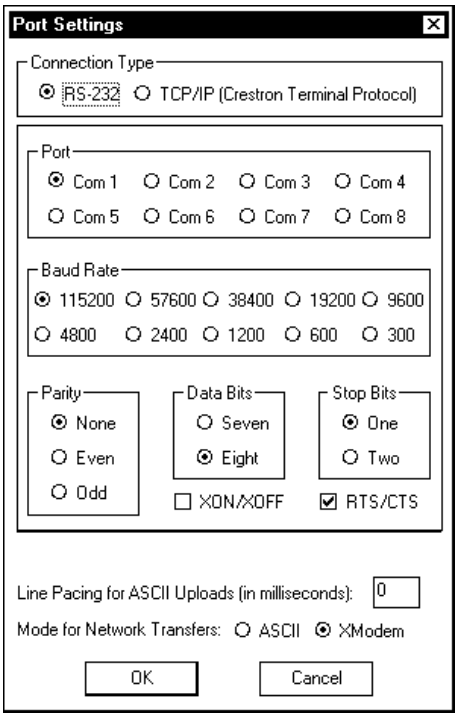
1. Open the Crestron Viewport.
   Either launch the stand-alone version of Viewport, or start SIMPL Windows, and from the menu bar, select **Tools | Viewport.**
2. Refer to the figure after this step. From the Viewport menu, select **Setup | Communications settings** (alternatively, press **Alt+D**) to open the "Port Settings" window.

Setup | Communications Settings Command



3. Select **RS-232** as the connection type. Verify that an available COM port (COM 1 is shown after this step) is selected, and that all communication parameters and necessary options from the "Port Settings" window are selected as shown after this step. Click the **OK** button to save the settings and close the window.

"Port Settings" Window



NOTE: The parameters shown in the illustration above are the port settings for a 2-Series control system. Consult the Operations Guide for the control system being used for exact parameter selection.

4. To verify communication, select **Diagnostics | Establish Communications (Find Rack)**. This should display a window that gives the COM port and baud rate. If communication cannot be established, refer to the "Troubleshooting Communications" section in the respective Operations Guide for the control system.

Uploading a SIMPL Windows Program

A control system source file has the extension .smw. A compiled SIMPL Windows file has the extension .spz for a 2-Series control system, .bin for CNX generation, and .csz for CNX generation with SIMPL+.

The SIMPL Windows file can be uploaded to the control system using SIMPL Windows or via the Crestron Viewport.

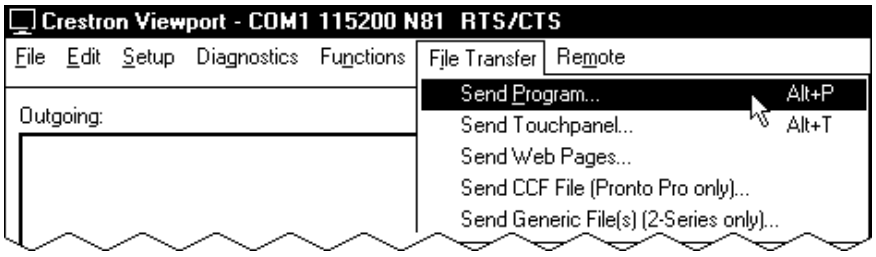
Upload via SIMPL Windows

1. Start SIMPL Windows.
2. Select **File | Open** to view the "Open" window, navigate to the SIMPL Window file (.smw), and click **Open**.
3. Select **Project | Transfer Program**.

Upload via Crestron Viewport

1. Verify that the procedure for "Communication Settings" that begins on page 18 has been performed.
2. As shown after this step, select **File Transfer | Send Program** (alternatively, press **Alt+P**) from the Viewport menu.

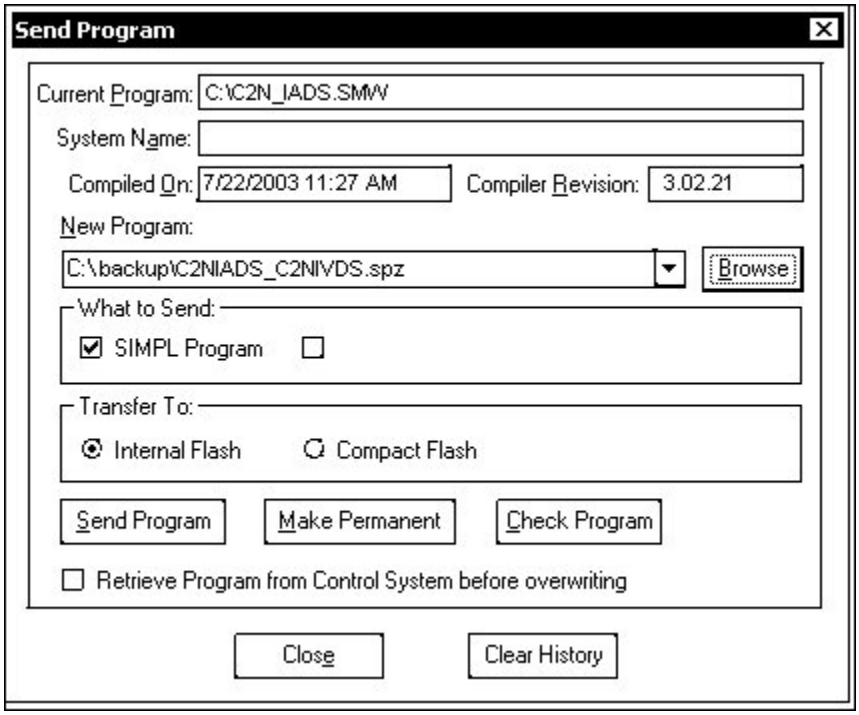
File Transfer | Send Program Command


Crestron Viewport - COM1 115200 N81 RTS/CTS
File Edit Setup Diagnostics Functions File Transfer Remote
Outgoing:
Send Program... Alt+P
Send Touchpanel... Alt+T
Send Web Pages...
Send CCF File (Pronto Pro only)...
Send Generic File(s) (2-Series only)...

3. The "Send Program" window appears, as shown after this step. Click **Browse**, locate the compiled file (.spz for PRO2) and click **Open**. This will display the program's header information and enable one or both of the *What to Send* check boxes. If the program does not contain any SIMPL+ modules, only the *SIMPL Program* check box will be enabled. If it does contain SIMPL+ modules, then the *SIMPL+ Program(s)* check box will also be enabled. Select one or both check boxes and then click **Send Program** to begin the transfer.

NOTE: Refer to the respective Operations Guide for the control system for details about the other fields shown on the "Send Program" window.

"Send Program" Window



4. To verify that the program has been transferred successfully, select **Diagnostics** | **Report Program Information**. This should display a window that provides details about the current program loaded into the control system.

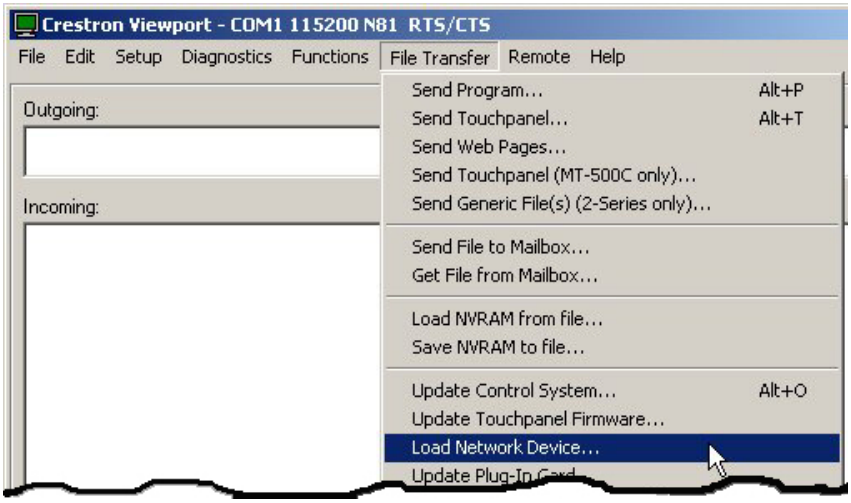
Firmware Upgrade

A firmware upgrade file has the extension .upg.

To take advantage of all the IADS features, it is important that the unit contains the latest firmware available. Therefore, please check the Crestron website (http://www.crestron.com/downloads/software_updates.asp) for the latest version of firmware. Not every product has a firmware upgrade, but as Crestron improves functions, adds new features, and extends the capabilities of its products, firmware upgrades are posted. To upgrade the firmware, complete the following steps.

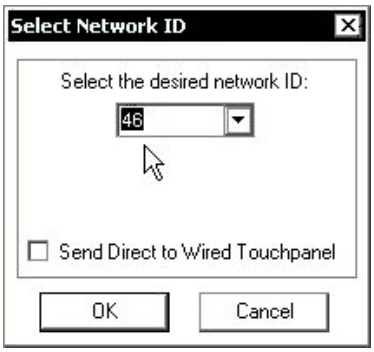
1. Make sure that "Communication Settings" that begins on page 18 has been performed.
2. As shown after this step, select **File Transfer | Load Network Device** from the Viewport menu.

File Transfer | Load Network Device Command



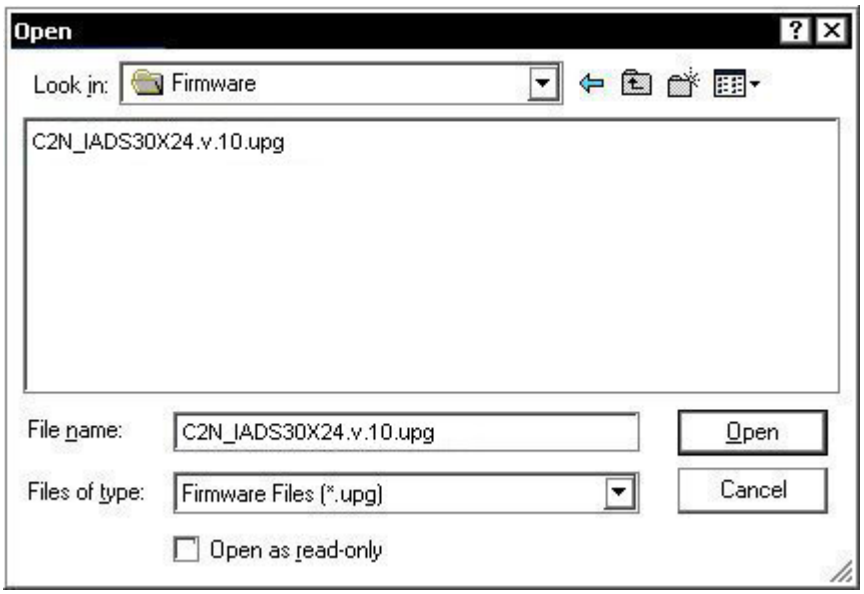
3. As shown after this step, select the Net ID of the IADS and then click **OK**. The "Open" window appears (refer to the subsequent graphic).

"Select Network ID" Window



NOTE: When transferring any Cresnet file (touchpanel project/firmware), lower the port speed baud rate to 38400 to match the Cresnet bus speed.

"Open" Window



4. Browse to the desired upg file and click **Open** to begin the transfer.

Problem Solving

Troubleshooting

The table below provides corrective action for possible trouble situations. If further assistance is required, please contact a Crestron customer service representative.

C2N-IADS30X24 Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Power LED does not Illuminate	IADS is not receiving power.	Verify that cable plugged into networkport is secure. Ensure sufficient network power to support all NET devices.
NET LED does not illuminate	Loose network connection.	Verify that cable plugged into NET port is secure.
	Improper Net ID.	Verify that IADS Net ID matches Net ID in software program. Refer to "Identity Code."
Hum on audio.	Grounding problem.	Either connect or remove chassis ground wire.

Further Inquiries

If, after reviewing this Operations Guide, you cannot locate specific information or have questions, please take advantage of Crestron's award winning customer service team in your area. Dial one of the following numbers.

- In the US and Canada, call Crestron's corporate headquarters at 1-888-CRESTRON [1-888-273-7876].
- In Europe, call Crestron International at +32-15-50-99-50.
- In Asia, call Crestron Asia at +852-2341-2016.
- In Latin America, call Crestron Latin America at +5255-5093-2160.
- In Australia and New Zealand, call Crestron Pacific at +613-9480-2999.

Future Updates

As Crestron improves functions, adds new features, and extends the capabilities of the IADS, additional information and programming examples may be made available as manual updates. These updates are solely electronic and serve as intermediary supplements prior to the release of a complete technical documentation revision.

Check the Crestron website (www.crestron.com) periodically for manual update availability and its subjective value. Updates are available from the Downloads | Product Manuals section and are identified as an “Addendum” in the Download column.

Return and Warranty Policies

Merchandise Returns / Repair Service

1. No merchandise may be returned for credit, exchange, or service without prior authorization from CRESTRON. To obtain warranty service for CRESTRON products, contact the factory and request an RMA (Return Merchandise Authorization) number. Enclose a note specifying the nature of the problem, name and phone number of contact person, RMA number, and return address.
2. Products may be returned for credit, exchange, or service with a CRESTRON Return Merchandise Authorization (RMA) number. Authorized returns must be shipped freight prepaid to CRESTRON, Cresskill, N.J., or its authorized subsidiaries, with RMA number clearly marked on the outside of all cartons. Shipments arriving freight collect or without an RMA number shall be subject to refusal. CRESTRON reserves the right in its sole and absolute discretion to charge a 15% restocking fee, plus shipping costs, on any products returned with an RMA.
3. Return freight charges following repair of items under warranty shall be paid by CRESTRON, shipping by standard ground carrier. In the event repairs are found to be non-warranty, return freight costs shall be paid by the purchaser.

CRESTRON Limited Warranty

CRESTRON ELECTRONICS, Inc. warrants its products to be free from manufacturing defects in materials and workmanship under normal use for a period of three (3) years from the date of purchase from CRESTRON, with the following exceptions: disk drives and any other moving or rotating mechanical parts, pan/tilt heads and power supplies are covered for a period of one (1) year; touchscreen display and overlay components are covered for 90 days; batteries and incandescent lamps are not covered.

This warranty extends to products purchased directly from CRESTRON or an authorized CRESTRON dealer. Purchasers should inquire of the dealer regarding the nature and extent of the dealer's warranty, if any.

CRESTRON shall not be liable to honor the terms of this warranty if the product has been used in any application other than that for which it was intended, or if it has been subjected to misuse, accidental damage, modification, or improper installation procedures. Furthermore, this warranty does not cover any product that has had the serial number altered, defaced, or removed.

This warranty shall be the sole and exclusive remedy to the original purchaser. In no event shall CRESTRON be liable for incidental or consequential damages of any kind (property or economic damages inclusive) arising from the sale or use of this equipment. CRESTRON is not liable for any claim made by a third party or made by the purchaser for a third party.

CRESTRON shall, at its option, repair or replace any product found defective, without charge for parts or labor. Repaired or replaced equipment and parts supplied under this warranty shall be covered only by the unexpired portion of the warranty.

Except as expressly set forth in this warranty, CRESTRON makes no other warranties, expressed or implied, nor authorizes any other party to offer any warranty, including any implied warranties of merchantability or fitness for a particular purpose. Any implied warranties that may be imposed by law are limited to the terms of this limited warranty. This warranty statement supercedes all previous warranties.

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Operations Guide – DOC. 6170
08.03

Specifications subject to
change without notice.